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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,495	11/13/2000	Bruce Joseph Roser	P65952US0	9084

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EXAMINER	
HENRY, MICHAEL C	

ART UNIT	PAPER NUMBER
1623	

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/623,495	ROSER ET AL.	
	Examiner	Art Unit	
	Michael C. Henry	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-36 and 45-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-36 and 45-58.* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

The following office action is a responsive to the Amendment filed, 10/20/03.

The amendment filed 10/20/03 affects the application, 09/623,495 as follows:

1. Claims 37 - 44 and Claims 59 – 66 have been cancelled. Claims 21 and 45 have been amended. This leaves claims 21-36 and 45-58.
2. Applicant responds to the 112 and 102 rejections by canceling claims 37 - 44 and claims 59 –66 and amending claims 21 and 45.
3. The responsive to applicants' arguments is contained herein below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21-28, 33, 46-50 rejected under 35 U.S.C. 102(b) as being anticipated by Foster et al. (US 6,258,341 B1).

In claim 21, applicants' claim "A method for making a composition to stabilize at least one biologically, chemically or pharmaceutically active compound which is normally subject to deactivation on drying comprising the step of forming an aqueous system by mixing the compound with a solution of (i) one or more monosaccharide sugar alcohol which would normally form sugar crystals on drying; and (ii) at least one additive which is a glass-former or a formulation-facilitator, the total amount of the additive being sufficient to cause the monosaccharide sugar alcohol to form a glass on drying, and the additive itself does not

crystallize during drying ; wherein the composition of the solution being selected such that it solidifies as an amorphous glass irrespective of the presence or absence of the active compound." Foster et al. disclose a method for making a composition to stabilize at least one biologically, chemically or pharmaceutically active compound (Human zinc insulin) which is normally subject to deactivation on drying comprising the step of forming an aqueous system by mixing the compound with a solution of (i) one or more monosaccharide sugar alcohol (mannitol) which would normally form sugar crystals on drying; and (ii) at least one additive (sodium citrate) which is a glass-former or a formulation-facilitator, the total amount of the additive being sufficient to cause the monosaccharide sugar alcohol to form a glass on drying, and the additive itself does not crystallize during drying ; wherein the composition of the solution being selected such that it solidifies as an amorphous glass the presence of the active compound." (example 3, col. 23; see also, table 1, col. 14, lines 49-65; see also example 1, col. 18 and example 2, col. 20). Claims 22-28, 33 are also rejected because, the limitations and/or dependability encompassed by these claims are also anticipated by Foster et al. (example 3, col. 23; see also, table 1, col. 14, lines 49-65; see also example 1, col. 18 and example 2, col. 20). It should be noted that the examiner considers that because Foster's compound or composition which comprises of the same compounds or composition as applicant's and which method of making comprises of the same steps as applicant's, should also form an amorphous glass in the absence of the active compound.

In Claim 45, applicant claims "a composition comprising an amorphous sugar glass without crystals therein containing at least one monosaccharide sugar alcohol and at least one additive which is a glass-former or a glass-formation-facilitator and at least one biologically chemically or pharmaceutically active compound which is normally subject to deactivation on

drying in a weight ratio of the monosaccharide sugar alcohol plus the additive to the compound of at least 0.25:1, wherein the monosaccharide sugar alcohol and the additive being selected such that the composition solidifies as an amorphous glass irrespective of the presence or absence of the active compound." Foster et al. disclose applicant's "a composition comprising an amorphous sugar glass without crystals therein containing at least one monosaccharide sugar alcohol (mannitol) and at least one additive (sodium citrate) which is a glass-former or a glass-formation-facilitator and at least one biologically chemically or pharmaceutically active compound (Human zinc insulin) which is normally subject to deactivation on drying in a weight ratio of the monosaccharide sugar alcohol plus the additive to the compound of at least 0.25:1, wherein the monosaccharide sugar alcohol and the additive being selected such that the composition solidifies as an amorphous glass in presence of the active compound (example 3, col. 23; see also, table 1, col. 14, lines 49-65; see also example 1, col. 18 and example 2, col. 20). In fact, Foster et al. composition may well have said activity under said conditions. Claims 46-50, 55 which are drawn to specific ratio of sugar alcohol plus the additive to the compound, specific compounds, specific conditions of drying and specific sugar alcohols, are also rejected because, the limitations and/or dependability encompassed by these claims are also anticipated by Foster et al. (example 3, col. 23; see also, table 1, col. 14, lines 49-65; see also example 1, col. 18 and example 2, col. 20). It should be noted that the examiner considers that because Foster's compound or composition which comprises of the same compounds or composition as applicant's and which method of making comprises of the same steps as applicant's, should also form an amorphous glass in the absence of the active compound.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 21-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster et al. (US Patent No. 6,258,341 B1).

In claim 21, applicants' claim "A method for making a composition to stabilize at least one biologically, chemically or pharmaceutically active compound which is normally subject to deactivation on drying comprising the step of forming an aqueous system by mixing the compound with a solution of (i) one or more monosaccharide sugar alcohol which would normally form sugar crystals on drying; and (ii) , at least one additive which is a glass-former or a formulation-facilitator, the total amount of the additive being sufficient to cause the monosaccharide sugar alcohol to form a glass on drying, and the additive itself does not crystallize during drying ; wherein the composition of the solution being selected such that it solidifies as an amorphous glass irrespective of the presence or absence of the active compound."

Foster et al. disclose a method for making a composition to stabilize at least one biologically, chemically or pharmaceutically active compound which is normally subject to deactivation on drying comprising the step of forming an aqueous system by mixing the compound with a solution of (i) one or more monosaccharide sugar alcohol (manitol) which would normally form sugar crystals on drying; and (ii), at least one additive (sodium citrate) which is a glass-former or a formulation-facilitator, the total amount of the additive being

sufficient to cause the monosaccharide sugar alcohol to form a glass on drying, and the additive itself does not crystallize during drying ; wherein the composition of the solution being selected such that it solidifies as an amorphous glass the presence of the active compound (Human zinc insulin)." (example 3, col. 23; see also, table 1, col. 14, lines 49-65; see also example 1, col. 18 and example 2, col. 20). Claims 22-28, 33 are also rejected because, the limitations and/or dependability encompassed by these claims are also anticipated by Foster et al. (example 3, col. 23; see also, table 1, col. 14, lines 49-65; see also example 1, col. 18 and example 2, col. 20). Claims 29-32, 34 and 35, are further limitations of claim 21 which are drawn to a method or product pertaining to specific additives or monosaccharide alcohols. ." In addition, Foster et al. disclose a method and product of elcatonin powder prepared from elcatonin and glass formers and additives (example 18, col. 43).

The difference between applicants claimed method and the method that is exemplified by Foster et al. is that, Foster et al. do not disclose the identical glass formers or additives like those claimed by the applicants'. However, Foster et al. suggest that additives used by the applicants including, peptides, proteins, and salts like calcium lactate, sodium tetraborate can be used (col. 12, lines 25-37), (col. 13, lines 13-20), (col. 12, line 65 to col. 13, line 12). Foster et al. also suggest that monosaccharide sugar alcohols other than mannitol (like xylitol and sorbitol) can be used (col. 11, lines 24-36).

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made to use the method of drying of Foster et al. to prepare a composition comprising an amorphous glass, without crystals therein, of compounds using different monosaccharide sugar alcohols and additives.

One having ordinary skill in the art would have been motivated, in view of Foster et al., to prepare amorphous glass, without crystals therein, of compounds using different monosaccharide sugar alcohols and additives, depending on cost, availability and/or convenience of use. The preparations of different amorphous glass compositions are well known in the art.

In claim 36, applicants claim "The composition of claim 21 wherein the amorphous glass comprises: ..... .; Mannitol 50%, and dextran 50%.;....."

Foster et al. disclose a composition of claim 21 consisting of mannitol and other additives (example 3, col. 23; see also, table 1, col. 14, lines 49-65; see also example 1, col. 18 and example 2, col. 20).

The difference between applicants claimed composition and the composition that is exemplified by Foster et al. is that, Foster et al. do not disclose the use of dextran in combination with mannitol. However, Foster et al. suggest that dextran is a glass former (see table 1, col. 14, lines 49-65). In addition, Foster et al. use more than one additive in his method.

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made to use the method of drying of Foster et al. to prepare a composition comprising an amorphous glass of compounds using different monosaccharide sugar alcohols and/or additives in different percent combinations.

One having ordinary skill in the art would have been motivated, to use the method of drying of Foster et al. to prepare a composition comprising an amorphous glass of compounds using different monosaccharide sugar alcohols and/or additives in different percent combinations, depending on cost, availability and/or convenience of use. The preparations of different amorphous glass compositions are well known in the art.

In Claim 45, applicant claims "a composition comprising an amorphous sugar glass without crystals therein containing at least one monosaccharide sugar alcohol and at least one additive which is a glass-former or a glass-formation-facilitator and at least one biologically chemically or pharmaceutically active compound which is normally subject to deactivation on drying in a weight ratio of the monosaccharide sugar alcohol plus the additive to the compound of at least 0.25:1, wherein the monosaccharide sugar alcohol and the additive being selected such that the composition solidifies as an amorphous glass irrespective of the presence or absence of the active compound."

Foster et al. disclose applicant's "a composition comprising an amorphous sugar glass without crystals therein containing at least one monosaccharide sugar alcohol and at least one additive which is a glass-former or a glass-formation-facilitator and at least one biologically chemically or pharmaceutically active compound which is normally subject to deactivation on drying in a weight ratio of the monosaccharide sugar alcohol plus the additive to the compound of at least 0.25:1, wherein the monosaccharide sugar alcohol and the additive being selected such that the composition solidifies as an amorphous glass in presence of the active compound (example 3, col. 23; see also, table 1, col. 14, lines 49-65; see also example 1, col. 18 and example 2, col. 20). In fact, Foster et al. composition may well have said activity under said conditions. Claims 46-50, 55 which are drawn to specific ratio of sugar alcohol plus the additive to the compound, specific compounds, specific conditions of drying and specific sugar alcohols, are also rejected because, the limitations and/or dependability encompassed by these claims are also anticipated by Foster et al. (example 3, col. 23; see also, table 1, col. 14, lines 49-65; see

also example 1, col. 18 and example 2, col. 20). In addition, Foster et al. disclose a product of elcatonin powder prepared from elcatonin and glass formers and additives (example 18, col. 43).

The difference between applicants claimed composition and the composition that is exemplified by Foster et al. is that, Foster et al. do not disclose the identical glass formers or additives like those claimed by the applicants'. However, Foster et al. suggest that additives used by the applicants including, peptides, proteins, and salts like calcium lactate, sodium tetraborate can be used (col. 12, lines 25-37), (col. 13, lines 13-20), (col. 12, line 65 to col. 13, line 12). Foster et al. also suggest that monosaccharide sugar alcohols other than mannitol (like xylitol and sorbitol) can be used (col. 11, lines 24-36).

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made to have prepared Foster et al. composition comprising an amorphous glass, without crystals therein, of compounds using different monosaccharide sugar alcohols and additives.

One having ordinary skill in the art would have been motivated, in view of Foster et al., to prepare Foster et al. composition comprising an amorphous glass, without crystals therein, of compounds using different monosaccharide sugar alcohols and additives, depending on cost, availability and/or convenience of use.

In claim 58, applicants claim "The composition of claim 45 wherein the amorphous glass comprises: ..... .; Mannitol 50%, and dextran 50%.;....."

Foster et al. disclose a composition consisting of mannitol and other additives (example 3, col. 23; see also, table 1, col. 14, lines 49-65; see also example 1, col. 18 and example 2, col. 20).

The difference between applicants claimed composition and the composition that is exemplified by Foster et al. is that, Foster et al. do not disclose the use of dextran in combination with mannitol. However, Foster et al. suggest that dextran is a glass former (see table 1, col. 14, lines 49-65). In addition, Foster et al. use more than one additive in his method.

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made to have prepared Foster et al. composition comprising an amorphous glass, without crystals therein, of compounds using different monosaccharide sugar alcohols and/or additives in different percent combinations.

One having ordinary skill in the art would have been motivated, in view of Foster et al. to prepare Foster et al. composition comprising an amorphous glass, without crystals therein, of compounds using different monosaccharide sugar alcohols and/or additives in different percent combinations, depending on cost, availability and/or convenience of use. The preparations of different amorphous glass compositions are well known in the art.

Response to Amendment

Applicant's arguments filed 10/20/03 have been fully considered but they are not persuasive.

The applicant argues that, the newly amended Claim 21 has included the limitation that the composition of the solution being selected such that it solidifies as an amorphous glass irrespective of the presence or absence of the active compound. Foster does not teach or suggest that an amorphous glass can be formed in the absence of the active compound. However, although Foster does not suggests that an amorphous glass can be formed in the absence of the active compound Foster's compound or composition and method anticipates applicant's

compound or composition and method thus Foster's compound or composition should also form an amorphous glass in the absence of the active compound. In fact, Foster's silence pertaining to the formation of amorphous glass in the absence of the active compound does not imply that his compound or composition does not form said amorphous glass in the absence of the active compound.

The applicant argues that, in addition, the compositions in Foster cannot be used in environments where only a small quantity active substance needs to be included in a manageably large quantity of injectable liquid. Due to the small amount of such active substance, the active substance cannot be in excessive of sugar alcohol to form glass. However, Foster's compound or composition and method anticipates applicant's compound or composition and method thus, Foster's amorphous glass should also be easily adaptable for using with different active substances and amounts used should not be critical. Furthermore, Foster et al. teach that their glasses are able to contain and stabilize a wide range of types of actives, both glass formers and non-glass formers (e.g. nonmacromolecule pharmaceuticals and macropharmaceuticals like estrogen, progesterone, dexamethasone, calcitonin, erythropoietin, cyclooxygenase (see col. 8 lines 39 to col. 9, line 34)) and in a very wide range of concentrations. More specifically, Foster et al. teach that in preparing the compositions of their invention, the pharmacologically active material will be present in amount that range between about 0.05%w for a drug that is not very active material to about 99%w for a drug that is not very active and is a glass former itself (col. 14, lines 66-67 to col. 15, lines 1-3). Foster et al. also teach the use of preferred %w ranges of the active materials (col. 15, lines 3-5). Furthermore, Foster et al. do not specifically or generally teach any severe concentration constraints when the active material itself facilitates

glass formation. And, arguments by applicants pertaining to the concentration constraints or amounts in their method is not contained in their claims. In addition, no comparative test was done to support said arguments. Moreover, the applicants' invention, as claimed, is anticipated and is obvious over Foster et al. as indicated in the above rejections.

The Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Henry whose telephone number is 703 308-7307. The examiner can normally be reached on 8:30 am to 5:00 pm; Mon-Fri. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson can be reached on 703 308-4624. The fax phone number for the organization where this application or proceeding is assigned is 703 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-1235.

MCH

January 12, 2004.

JAMES O. WILSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600